

Lightning Safety



Signal Branch Safety Office

(706) 791-7233

Lightning Facts

2nd Leading Cause of Weather Deaths in the United States

**Kills more than
Hurricanes and Tornadoes
combined!**

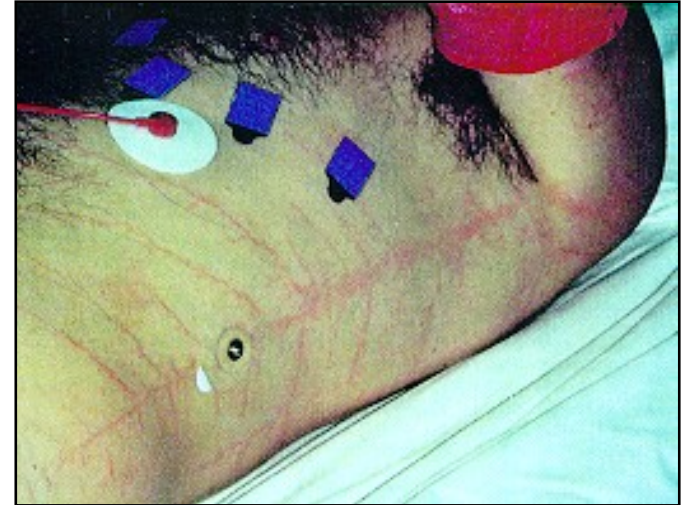
- **Kills ~ 100 / Year**
- **Kills ~ 10% of
those Struck**



Lightning Facts

Survivors are an even greater tragedy!

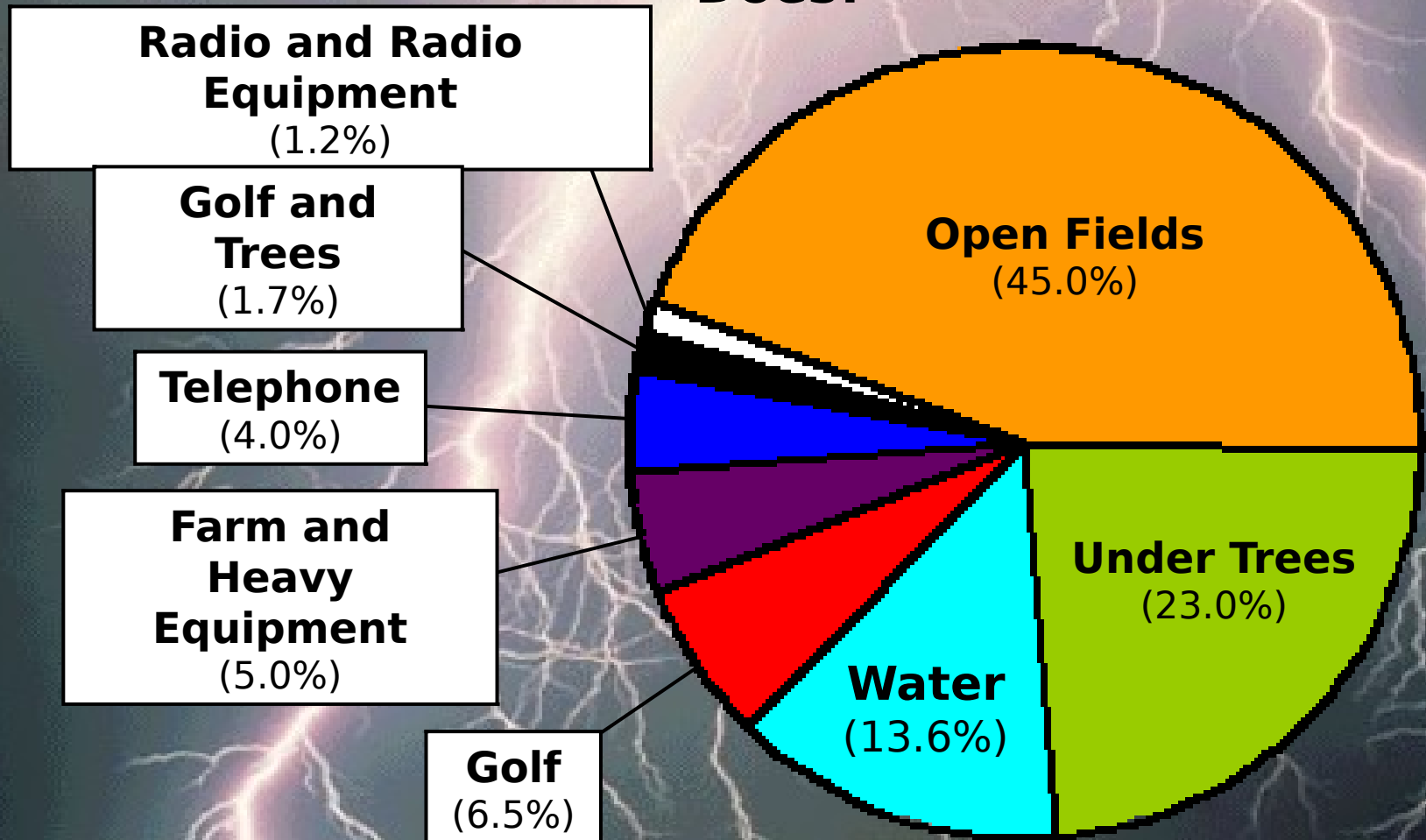
- **Injures ~750 / Year**
- **~ 70% Long-Term Medical Problems**
- **~ 30% Suffer Debilitating Problems**
- **Elusive Data**
 - **40 - 70% Under-Reported**



**Courtesy of National Lightning
Safety Institute**

Lightning

When thunderstorms nearby, avoid these activities like you ~~life~~ depends on it -- It Does!



Lightning Casualties In U.S. (1959-1994)

Lightning Safety when Outdoors

If you can see lightning or hear thunder, activate your safety plan. Resume activities only when lightning and thunder have not been observed for thirty minutes.

***If you can see it (lightning),
flee it; if you can hear it
(thunder), clear it.***

Lightning Safety

- **“30 / 30 Rule”**
- If 30 Secs Or Less “Flash To Bang”- Seek Shelter

COMMON MISCONCEPTION

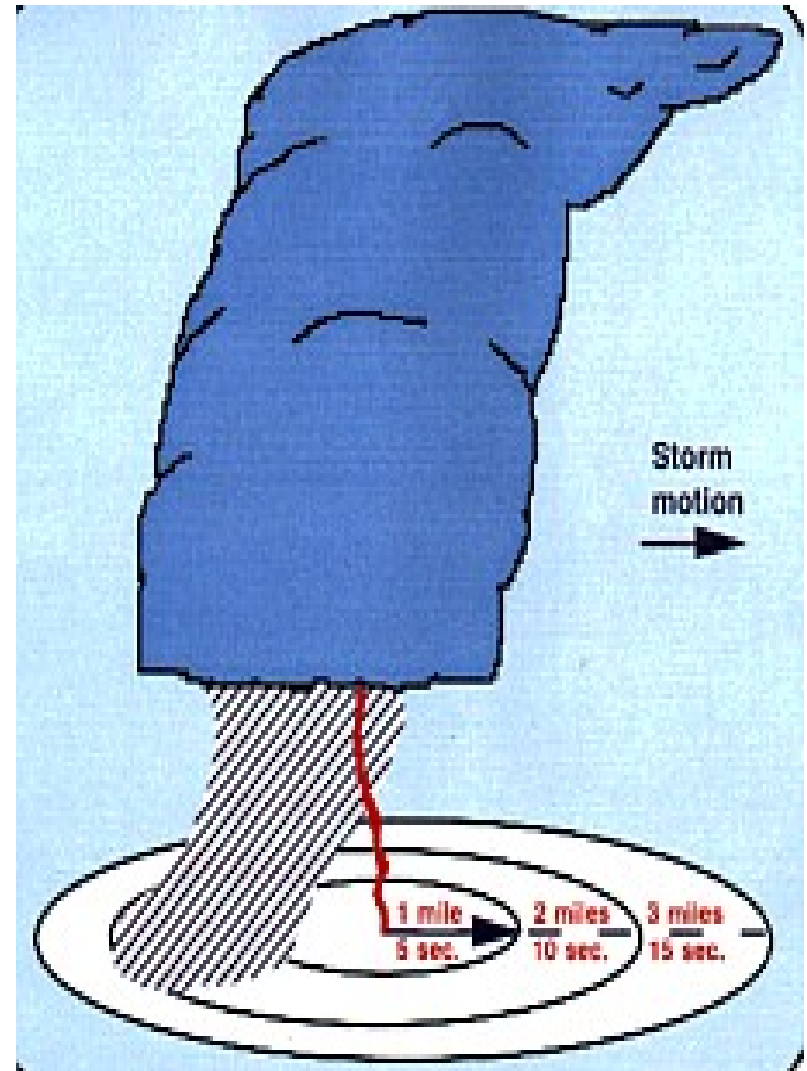
1 second = 1 mile

ACTUALLY

5 seconds = 1 mile

- Wait 30 Min After Last Lightning, Before Leaving Shelter

May Seem Too
Conservative--It's NOT!



Lightning Safety



- **Important Components Of A Dispersal/Safety Plan**
 - **Designated individual responsible to monitor the weather and initiate the necessary precautions when appropriate.**
 - **Procedure identified to notify all personnel of the appropriate actions when there is a threat or risk of lightning.**
 - **Safer locations must be pre-identified along with a means to route personnel to those locations.**
 - **Establishment of an “All Clear” signal which is differentiated from the warning signal.**
 - **Periodically [Review](#) / [Train](#) / [Drill Dispersal Plan](#)**

Associated Hazards

Contrary to common belief, most lightning accidents do not come from direct lightning strikes. There are several ways lightning can cause injury.

COMMUNICATION



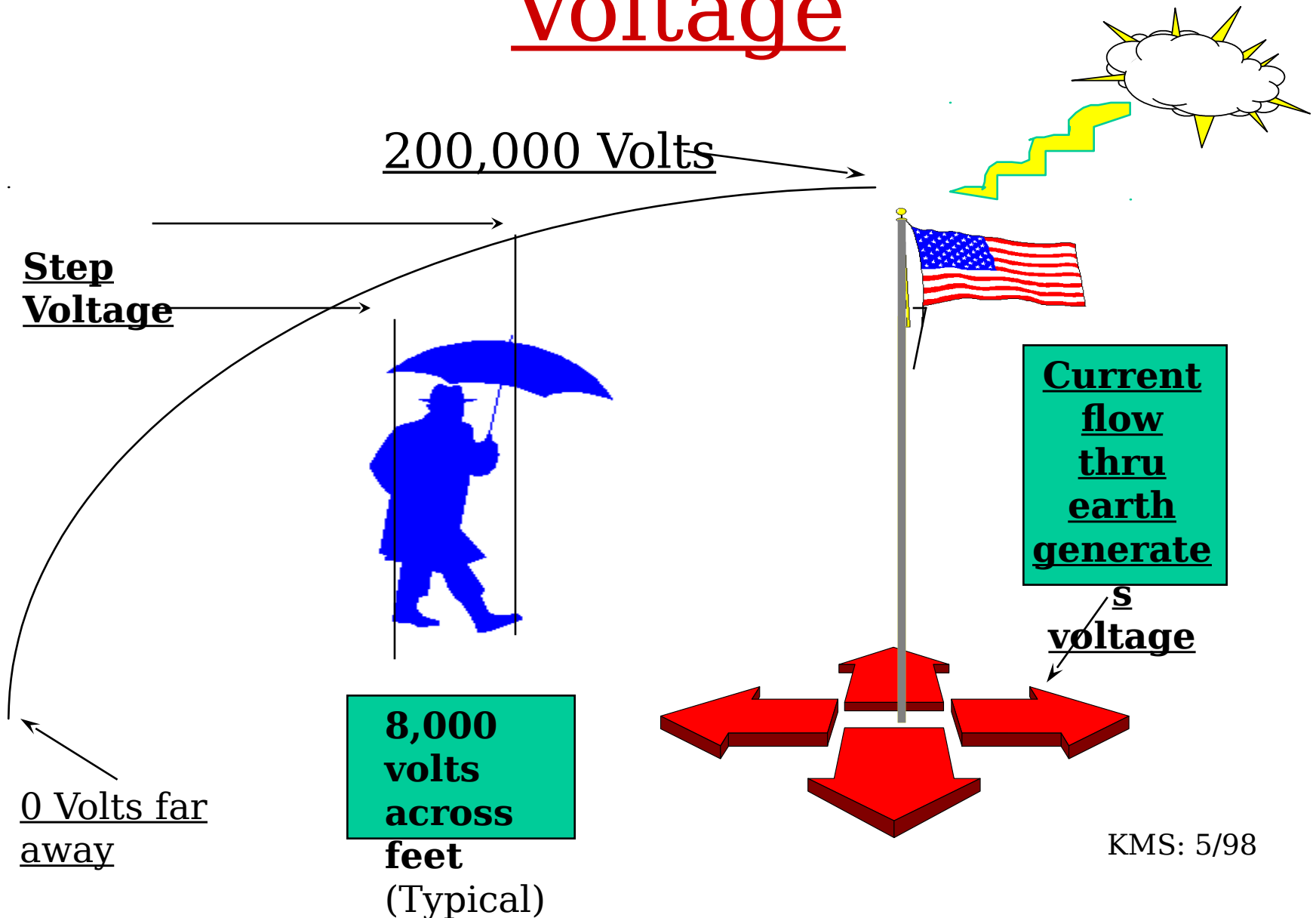
Tactical Communication

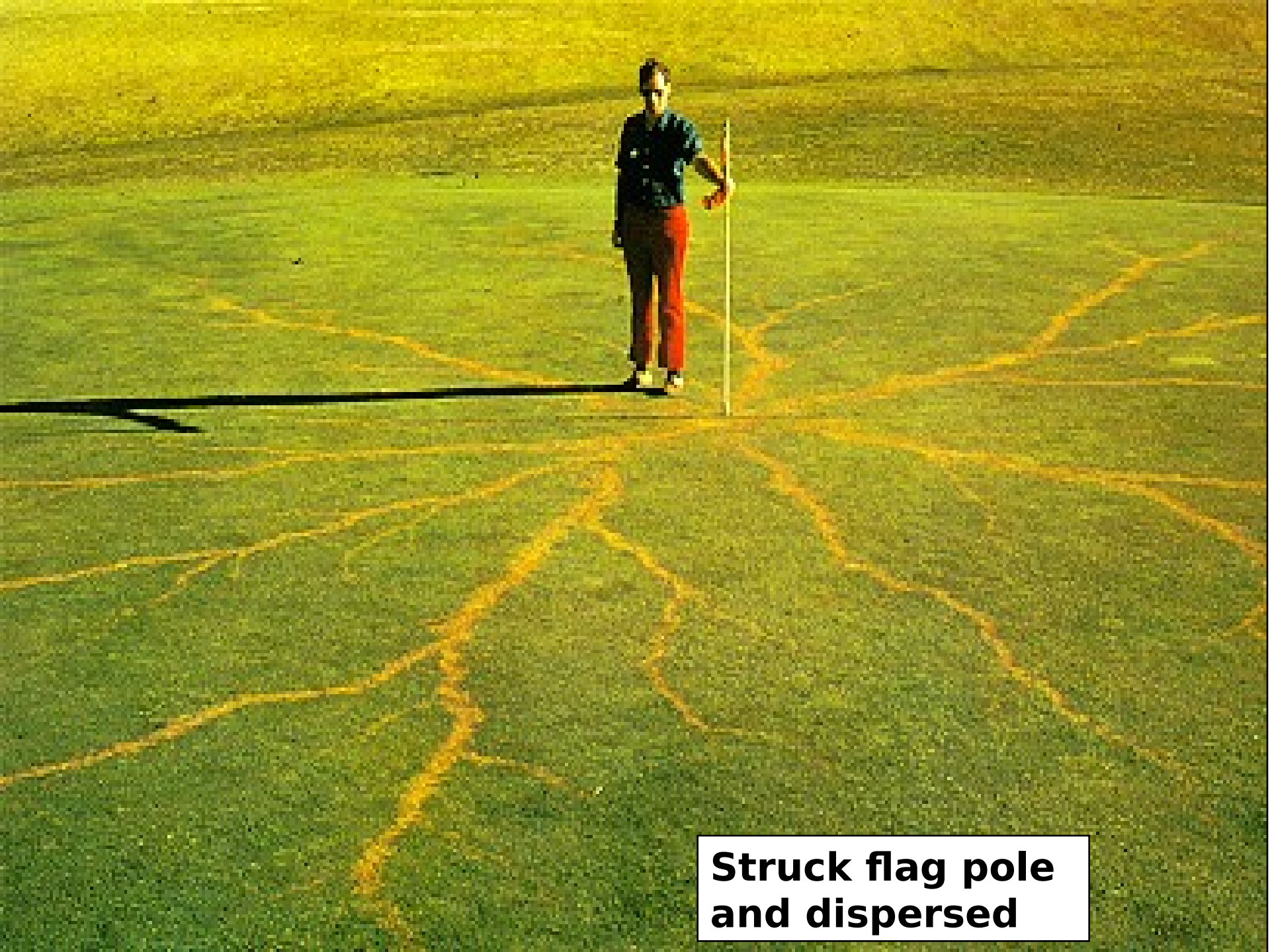
- Equipment will be grounded IAW grounding instructions contained in applicable TMs. Remember that soil type impacts the grounding.
- Keep away from antennas, masts, guy wires and all grounding and lightning protection equipment, including ground rods, during electrical storm activity. This includes vehicles with whip antennas.

Tactical Communication

- If mission permits, disconnect the signal inputs before the storm. Do not attempt this during the storm, even if lightning is not nearby!
- Restrict the use of telephones, computers and other electrical devices. Lightning could follow the wire. Most lightning injuries occur from using phones during electrical storms.
- Radios will not be used, nor will troops carry radios with antennas extended.

Lightning Step Voltage





**Struck flag pole
and dispersed**



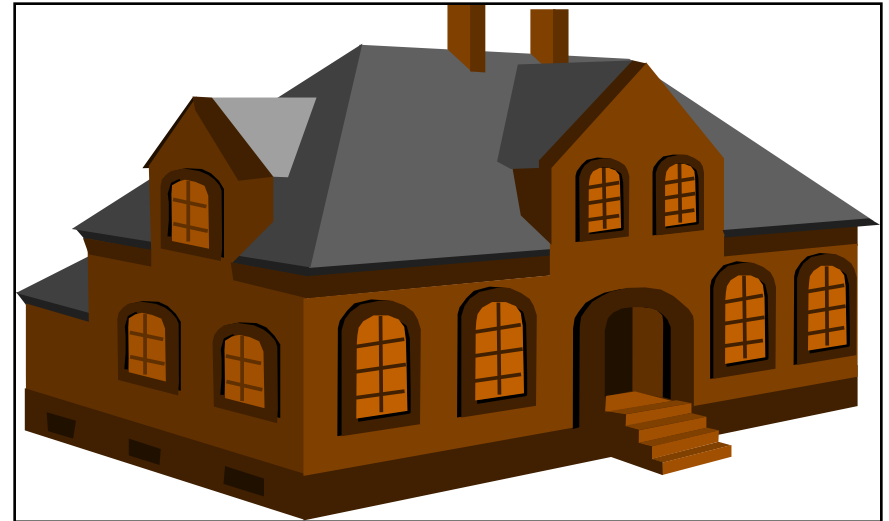
**Tree root
system**

Safe Locations #1

- No place is absolutely safe from lightning. Ideally, evacuation to a lightning certified or lightning protected building is the best when available; however, this will probably not be the case.

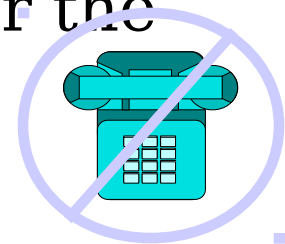
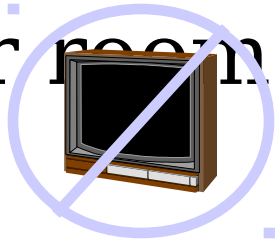
THEN

- Large enclosed structures (substantially constructed buildings).

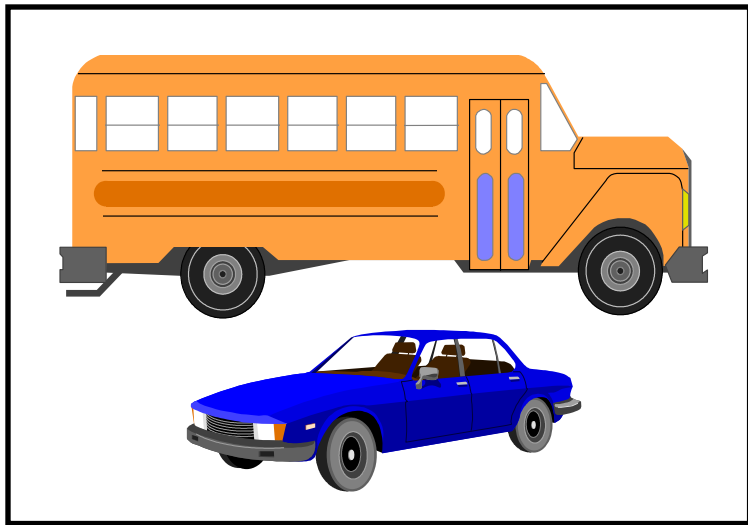


Indoor Lightning Safety

- Avoid using telephone (remember the wires).
- Avoid using water – sink, tub, etc. (plumbing)
- Unplug appliances (remember the wires).
- Inner rooms the best



Safe Locations #2



- Fully enclosed metal vehicles – car, bus, etc.
 - Close windows
 - Keep hands on lap

Not Canvas Type (soft) Tops

It's not the rubber tires that make a vehicle safe – it's the metal enclosure.

Safe Locations #3

- Remaining Outdoors
 - Stay away from rivers, lakes, or other bodies of water. Be aware of the potential for flooding in low-lying areas.
 - Stay away from natural lightning rods/tall structures such as: towers, tall trees, telephone poles/lines, tents with metal supports, etc.
 - Take shelter under a small tree among several large ones if possible. Stay at least six feet away from the tree trunk to minimize a side strike and step voltage. NEVER stand under an isolated tree.

Safe Locations #3 (con't)

- Stay low (crouch) in a ditch or depression. Other options include a low area, ravine, or foot of a hill.
DO NOT lie flat on ground.
- Weapons should be stacked at least 50 meters away from personnel.
- Mils gear and other metal conductors should be removed.

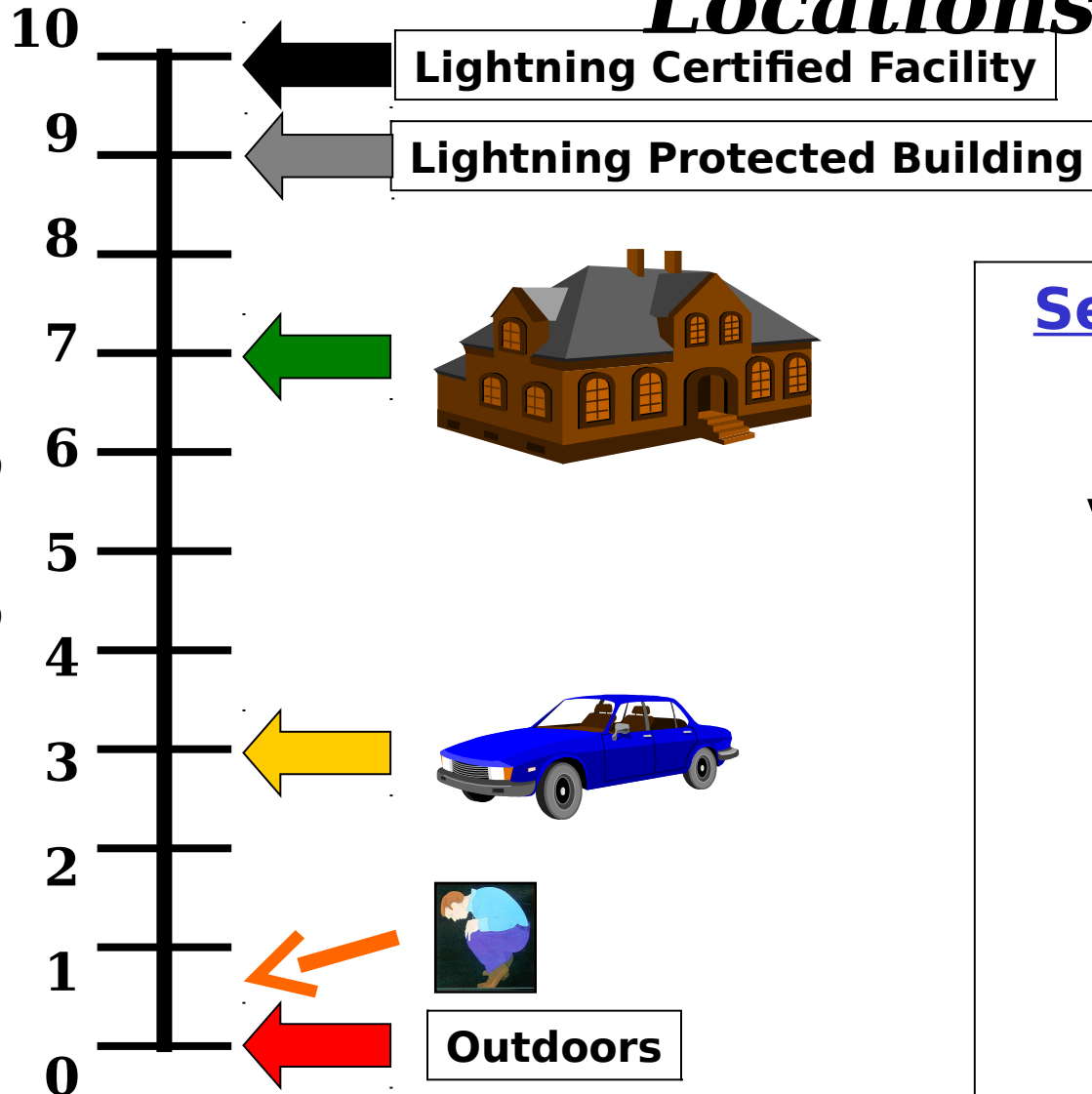
Lightning Safety Position (LSP)

- Assume LSP.
Crouch with feet as close together as possible. Have heels touch.
Place hands over ears.

-REMEMBER-
DO NOT LIE
FLAT ON THE
GROUND



Lightning Safe Locations



Seek Proper Shelter

- **Buildings Much Better Than Vehicles**
 - Large, Fully Enclosed, Substantially Built
- **Vehicles Offer Some Safety**
- **No Place Outside Is Safe Near A Thunderstorm**
 - Near \equiv 6 Miles

Lightning Safety Websites

- 45th Weather Squadron Lightning Safety Website:
<http://www.patrick.af.mil/45og/45ws/LightningSafety/index.htm>
- NOAA Lightning Safety:
<http://www.lightningsafety.noaa.gov/>
- CECOM Publications (Antenna Safety, Grounding, etc.)
<http://www.monmouth.army.mil/cecom/safety/SYSTEM/SPUB.HTM>
- Kids' Lightning Information and Safety:
<http://www.azstarnet.com/anubis/zaphome.htm>